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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,479	11/08/2001	Matt Pearson	132-33 US	5543

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CANADA

EXAMINER

BLEVINS, JERRY M

ART UNIT PAPER NUMBER

2883

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/986,479

Applicant(s)

PEARSON ET AL.

Examiner

Jerry Martin Blevins

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed December 19, 2006 have been fully considered but they are not persuasive.

Specifically, examiner contends that the array of waveguides taught by applied prior art reference to Bidnyk define an array of divided waveguides. The waveguides of Bidnyk are clearly divided into three separate groupings, listed as channels 106, 108, and 209. Therefore, examiner maintains that the waveguide array of Bidnyk reads on the presently claimed invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7, 9-11, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pre Grant Publication 2002/0191887 to Bidnyk.

Regarding claim 1, Bidnyk teaches an optical performance monitor (Figs. 1,2) for measuring the performance of optical networks, comprising a demultiplexer (AWG 116)

Art Unit: 2883

for demultiplexing an input beam into a plurality of wavelength channels; an array of divided output waveguides (108,209), each divided output waveguide positioned to receive a corresponding demultiplexed wavelength channel from said demultiplexer, and each divided output waveguide laterally separating said corresponding demultiplexed wavelength into a first portion (108) and a second portion (209); and a detector array (204) having sensor elements positioned to receive said respective first and second portions of said demultiplexed wavelength channels.

Regarding claim 2, Bidnyk teaches that the demultiplexer is an echelle grating (paragraph 56).

Regarding claim 7, Bidnyk teaches that the optical waveguides are ridge waveguides (108,209) and are coupled to the echelle grating by a slab waveguide (112).

Regarding claim 9, Bidnyk teaches that the divided waveguides are positioned such that when light having a nominal channel wavelength is directed onto the divided optical waveguides, the light is divided substantially equally into the first and the second portions (paragraph 43).

Regarding claim 10, Bidnyk teaches a method of monitoring the performance of an optical network (Figs. 1,2), comprising the steps of demultiplexing an input beam into a plurality of wavelengths (by demultiplexer 116, into channels 108, 209); receiving said demultiplexed wavelengths in divided output waveguides (108,209), said output waveguides separating said demultiplexed wavelengths into laterally spaced portions (channels 1-12); and detecting the relative intensity of said laterally spaced portions to

Art Unit: 2883

determine the drift of said demultiplexed wavelengths from nominal values (paragraph 43).

Regarding claim 11, Bidnyk teaches demultiplexing with an echelle grating (paragraph 56).

Regarding claim 16, Bidnyk teaches an optical channel monitor (Figs. 1,2) comprising an echelle grating (paragraph 56) for receiving a beam of incoming light and demultiplexing said incoming light into a plurality of wavelength channels (channels 1-12); an array of output waveguides (108,209), each output waveguide positioned to receive a corresponding demultiplexed wavelength channel from said echelle grating; and a detector array (204) having sensor elements positioned to receive said respective demultiplexed wavelength channels.

Regarding claim 17, Bidnyk teaches an optical performance monitor for measuring the performance of optical networks (Figs. 1,2), comprising a planar waveguide echelle grating (116, paragraph 56) for demultiplexing an input beam into a plurality of wavelength channels (channels 1-12); an array of divided output waveguides (108,209), each divided output waveguide positioned to receive a corresponding demultiplexed wavelength channel from said demultiplexer, and each divided output waveguide laterally separating said corresponding demultiplexed wavelength channel into a first portion (108) and a second portion (209); a slab waveguide (112) coupling said output waveguides to said planar echelle grating; and a detector array (204) having sensor elements positioned to receive said respective first and second portions of said demultiplexed wavelength channels.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bidnyk in view of US Patent 6,826,331 to Barwicz et al.

Regarding claim 3, Bidnyk teaches the limitations of the base claim 2. Bidnyk does not teach an undivided waveguide between adjacent pairs of divided output waveguides being positioned so as to receive background noise signals having wavelengths between the demultiplexed wavelength channels. Barwicz teaches waveguides positioned to receive background noise signals (column 12, lines 51-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the monitor of Bidnyk such that an undivided waveguide is placed between adjacent pairs of output waveguides to receive background noise signals, as taught by Barwicz. The motivation would have been to monitor signal to noise ratios (column 12, lines 51-67).

Regarding claim 14, Bidnyk teaches the limitations of the base claim 11. Bidnyk does not teach detecting background radiation at wavelength channels corresponding to positions between adjacent pairs of divided output waveguide. Barwicz teaches waveguides positioned to receive background noise signals (column 12, lines 51-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to

Art Unit: 2883

modify the method Bidnyk such that an undivided waveguide is placed between adjacent pairs of output waveguides to detect background noise signals, as taught by Barwicz. The motivation would have been to monitor signal to noise ratios (column 12, lines 51-67).

Claim 4-6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bidnyk in view of Barwicz as applied to claim 3 above, and further in view of "Monolithic Integrated Wavelength Demultiplexer Based on a Waveguide Rowland Circle Grating in InGaAsP/InP" by He et al.

Regarding claims 4-6 and 13, Bidnyk in view of Barwicz teaches the limitations of the base claim 3. Bidnyk also teaches that the demultiplexed wavelength channels are focused onto the divided output waveguides (paragraph 56). Bidnyk does not teach that the echelle grating is a Rowland grating and a blazed grating and that the detector array is an InGaAs array. He teaches Rowland (title, abstract, introduction, and conclusion) blazed (page 632, first paragraph) gratings and InGaAs arrays (title, abstract, introduction, page 632, fourth paragraph, and page 633, first paragraph) for wavelength demultiplexing. It would have been obvious one of ordinary skill in the art at the time of the invention to modify the monitor of Bidnyk with the grating and detector array of He. The motivation would have been to allow for flat top channel response and decreased reflection loss (introduction).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bidnyk.

Regarding claim 8, Bidnyk teaches the limitations of the base claim 7. Bidnyk does not teach a thermoelectric cooler and temperature sensor to maintain the

Art Unit: 2883

temperature of the monitor at a nominal value. However, Bidnyk teaches the desirability of a temperature sensor (paragraph 30). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the monitor of Bidnyk with a cooler and temperature sensor. The motivation would have been to stabilize the performance of the monitor (paragraph 30).

Claims 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bidnyk in view of He.

Regarding claim 12, Bidnyk teaches the limitations of the base claim 11. Bidnyk does not teach that the demultiplexed wavelength channels are directed onto a mid-point of the divided output waveguides. He teaches demultiplexed wavelengths directed onto a mid-point of divided output waveguides (page 636, first paragraph and Figure 13). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Bidnyk with the teachings of He. The motivation would have been to maximize intensity (page 636, first paragraph and Figure 13).

Regarding claim 15, Bidnyk teaches the limitations of the base claim 11. Bidnyk does not teach that the laterally spaced portions are detected with an InGaAs detector. He teaches InGaAs arrays (title, abstract, introduction, page 632, fourth paragraph, and page 633, first paragraph) for wavelength demultiplexing detection. It would have been obvious one of ordinary skill in the art at the time of the invention to modify the monitor of Bidnyk with detector array of He. The motivation would have been to allow for flat top channel response and decreased reflection loss (introduction).



Art Unit: 2883

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bidnyk in view of Barwicz as applied to claim 3 above, and further in view of US 2004/0228602 to Livas et al.

Regarding claim 18, Bidnyk in view of Barwicz renders obvious the limitation of the base claim 3. Bidnyk does not teach detectors for measuring background noise and monitoring means for determining signal to noise ratio. Livas teaches detectors for measuring background noise and monitoring means for determining signal to noise ratio (claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the monitor of Bidnyk with the detectors and monitoring means of Livas. The motivation would have been to better monitor the efficiency of the optical network.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bidnyk in view of US 6,351,583 to Bergmann et al.

Regarding claim 19, Bidnyk teaches the limitations of the base claim 1. Bidnyk does not teach means for measuring drift for each wavelength channel. Bergmann teaches wavelength drift monitoring (column 5, lines 17-27). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the monitor of Bidnyk with the wavelength drift monitoring of Bergmann. The motivation would have been to better monitor the efficiency of the optical network.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

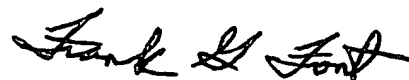
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Martin Blevins whose telephone number is 571-272-8581. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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